

CLAIMS

1/ A replenishing device for a closed circuit comprising:
at least one hydraulic motor having a casing which
defines an internal space and in which a cylinder block
is disposed; and at least two main pipes which are
connected to the pump and which constitute respectively a
feed main pipe and a discharge main pipe for the motor;
the replenishing device comprising a replenishing
selector suitable for putting the main pipe that is at
the lower pressure in communication with a communication
valve which itself communicates with a pressure-free
reservoir;

the replenishing selector and the communication
valve being united in the same replenishing valve unit
having an inlet suitable for being connected to the main
pipe that is at the lower pressure, and an outlet which
communicates continuously with the pressure-free
reservoir, the communication valve being suitable for
causing said inlet to communicate with said outlet when
the pressure in said main pipe that is at the lower
pressure reaches a given pressure threshold.

2/ A device according to claim 1, wherein the
replenishing valve unit further has a constriction
suitable for being interposed between the inlet and the
outlet of said valve unit, when said inlet and said
outlet are connected together via the communication
valve.

3/ A device according to claim 1, wherein the outlet of
the replenishing valve unit is connected to the pressure-
free reservoir via the internal space of the motor.

4/ A device according to claim 1, wherein the
replenishing valve unit further has a constriction
suitable for being interposed between the inlet and the
outlet of said valve unit, when said inlet and said

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outlet are connected together via the communication valve, and wherein the outlet of the replenishing valve unit is connected to the pressure-free reservoir via the internal space of the motor.

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5/ A device according to claim 1, wherein the replenishing valve unit comprises a valve body and a replenishing slide, the valve body having two inlet ports respectively connected continuously to respective ones of the two main pipes and an outlet port that communicates with the pressure-free reservoir, the replenishing slide being mounted to slide in the valve body by being controlled by the fluid pressure at said inlet ports acting against return means for returning the slide, so that said slide is caused to move between a neutral position in which said slide isolates the inlet and outlet ports, and two replenishing positions, in which that one of the first and second inlet ports which is connected to the main pipe at the lower pressure is capable of communicating with the outlet port via communication means, said replenishing valve unit further having means acting, when the slide is in the replenishing positions, to close off said communication means so long as the fluid pressure at the inlet port that is connected to the main pipe at the lower pressure has not reached a given pressure threshold.

6/ A device according to claim 5, wherein first and second control chambers communicating continuously respectively with the first and the second inlet ports of the valve body are provided at respective ends of the replenishing slide, and wherein, as considered in a direction in which the slide is displaced, the valve body successively presents the first inlet port, the outlet port, and the second inlet port.

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P9 7/ A device according to claim 5, wherein first and second control chambers communicating continuously respectively with the first and the second inlet port of the valve body are provided at respective ends of the 5 replenishing slide, wherein, as considered in a direction in which the slide is displaced, the valve body successively presents the first inlet port, the second inlet port and the outlet port, and wherein the first control chamber is situated at the end of the 10 replenishing slide that is closer to the first inlet port, while the second control chamber is situated at the opposite end and communicates with the second inlet port via a control channel provided in the valve body.

15 8/ A device according to claim 5, wherein the outlet of the replenishing valve unit is connected to the pressure-free reservoir via the internal space of the motor, wherein the casing of the motor is provided with a recess in which two main ducts connected to respective ones of 20 the two main pipes and a removal duct connected to the internal space of said casing open out, wherein the valve body forms a part suitable for being put in place in said recess such that the two inlet ports and the outlet port of said valve communicate respectively with the two main 25 ducts, and with the removal duct, and wherein the device includes sealing means suitable for co-operating with the valve body and with said recess in the casing to prevent any communication between said main ducts and the removal duct inside said recess otherwise than via the inlet and 30 the outlet ports of the valve body.

9/ A device according to claim 5, wherein the slide co-operates with a piston mounted to move relative to the slide between a neutral position in which said piston 35 closes off said communication means and at least one communication position in which said piston opens said communication means, said piston being suitable for being

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controlled to move between said positions thereof by control means comprising a piston control chamber which, when the slide is in a replenishing position, is connected to the main pipe at the lower pressure.

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10/ A device according to claim 8, wherein the slide co-
operates with a piston mounted to move relative to the
slide between a neutral position in which said piston
closes off said communication means and at least one
10 communication position in which said piston opens said
communication means, said piston being suitable for being
controlled to move between said positions thereof by
control means comprising a piston control chamber which,
when the slide is in a replenishing position, is
15 connected to the main pipe at the lower pressure.

11/ A device according to claim 1, wherein the
communication valve has a first pressure threshold as
from which said communication valve causes the inlet and
20 the outlet of the replenishing valve unit to communicate
when said inlet is connected to the first main pipe and a
second pressure threshold different from the first
pressure threshold, and as from which said communication
valve causes the inlet and the outlet of the replenishing
25 valve unit to communicate when said inlet is connected to
said second main pipe.

12/ A device according to claim 9, wherein the
communication valve has a first pressure threshold as
30 from which said communication valve causing the inlet and
the outlet of the replenishing valve unit to communicate
when said inlet is connected to the first main pipe and a
second pressure threshold different from the first
pressure threshold, and as from which said communication
35 valve causes the inlet and the outlet of the replenishing
valve unit to communicate when said inlet is connected to
said second main pipe, wherein the piston is suitable for

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occupying first and second communication positions, into which said piston is caused to go respectively by feeding a first piston control chamber with fluid against first piston return means and by feeding a second piston control chamber with fluid against second piston return means, and wherein said first and second piston return means, and wherein said first and second piston return means are calibrated for different pressures.

13/ A device according to claim 10, wherein the communication valve has a first pressure threshold as from which said communication valve causing the inlet and the outlet of the replenishing valve unit to communicate when said inlet is connected to the first main pipe and a second pressure threshold different from the first pressure threshold, and as from which said communication valve causes the inlet and the outlet of the replenishing valve unit to communicate when said inlet is connected to said second main pipe, wherein the piston is suitable for occupying first and second communication positions, into which said piston is caused to go respectively by feeding a first piston control chamber with fluid against first piston return means and by feeding a second piston control chamber with fluid against second piston return means, and wherein said first and second piston return means are calibrated for different pressures.

14/ A device according to claim 5, wherein the communication means comprise a calibrated passageway.

15/ A device according to claim 1, wherein the replenishing valve unit has a first constriction suitable for being interposed between the inlet and the outlet of the valve unit when said inlet is connected to the first main pipe, and a second constriction suitable for being interposed between the inlet and the outlet of the valve unit when said inlet is connected to the second main pipe.

16/ A device according to claim 15, wherein the communication means comprise a first calibrated passageway suitable for causing the first inlet port to communicate with the outlet port, and a second calibrated passageway suitable for causing the second inlet port to communicate with the outlet port.